

YEDIGAROV, S.G.; KUTUKOV, Ye.G.; ABRAMZON, L.S.; STEPANYUGIN, V.N.

Methods and equipment for the experimental determination  
of temperature and velocity fields in "hot" pipelines.

Transp. i Khran.nefti i nefteprod. no. 2:7-16 '64.

(MIRA 17:5)

1. Nauchno-issledovatel'skiy institut po transportu i  
khraneniye nefti i nefteproduktov.

ABRAMZON, L.S.; YEDIGAROV, S.G.

Determining the indices for a criterional equation when there is an insufficient amount of experimental data. Transp. i khran.nefti i nefteprod. no. 3:3-5 '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniya nefti i nefteproduktov.

YEDIGAROV, S.G.

Basic problems in the technical development of the transportation  
and storage of petroleum and petroleum products. Transp. 1  
khran. nefti no. 3:3-6 '63. (MIRA 17:7)

1. Gosudarstvennyy komitet po toplivnoy promyshlennosti  
pri Gosplane SSSR.

ABRAMZON, L.S.; YEDIGAROV, S.G.

Filling a cold empty pipeline with hot fluid. Transp. i khran.  
nefti no.7:6-9 '63. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu  
nefti i nefteproduktov.

YEDIGAROV, S.G.; RASHCHEPKIN, K.Ye.; MAYSKIY, A.A.

Mechanization of excavation in the major repair of pipelines. Transp.  
i khran. nefti no.10:3-5 '63. (MIRA 17:9)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu nefti  
i nefteproduktov.

YEDIGAROV, S.G.; VOLOKH, I.B.; RASHCHEPKIN, K.Ye.; MAYSKIY, A.A.;  
VALEYEV, E.Kh.; LOGVINOV, G.I.; ISMAGILOVA, F.Kh.

Excavator for uncovering pipelines in the ground. Transp. i khran.  
nefti i nefteprod. no.10:12-14 '64.

(MIRA 17:12)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu  
nefti i nefteproduktov.

YEDIGAROV, S.G.

Industrial tests of elastic containers for the transportation  
of petroleum products. Transp. i khran. nefi i nefteprod.  
no.12:19-21 '64. (MIRA 18:2)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut  
neftekhimicheskoy i gazovoy promyshlennosti im. akademika  
Gubkina.

TITLE: [illegible]



"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R001962320008-0

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YEDIGAROV, S.G.; SVIRIDOV, V.P.; BOLDOV, N.G.

Pouring mazut from tank cars with car dumpers. Trudy NIITransneft'  
no.3:77-83 '64. (MIRA 12:2)

YEDIGAROV, S.G.; LEVENTSOV, A.N.; KRUGLOV, A.N.; RASHCHEPKIN, K.Ye.;  
OVCHINNIKOV, I.S.

Mechanization of the packaging of solid petroleum bitumens.  
Neft. khoz. 40 no.4:60-65 Ap '62. (MIRA 15:5)  
(Bitumen)  
(Packaging machinery)

MIKHAYLOV, I.M., inzhener; YEDIGAROV, S.S., inzhener; VEBER, P.F., redaktor;  
FRIDKIN, A.M., tekhnicheskiy redaktor

[Manual on work and wages in electric power stations, networks, and plants of the Ministry of Electric Power Stations of the U.S.S.R.]  
Spravochnik po trudu i zarabotnoi plate na elektrostantsiyakh, v setiyakh i na zavodakh Ministerstva elektrostantsii SSSR. Moskva, Gos. energ. izd-vo, 1946. 267 p. (MLRA 9:10)

1. Russia (1923- U.S.S.R.) Ministerstvo elektrostantsii. Otdel truda i zarabotnoy platy. 2. Otdel truda i zarabotnoy platy Ministerstva elektrostantsiy. (for Mikhaylov, Yedigarov)  
(Electric power plants) (Wages)

YEDIGAROVA, N. N.

Behavior of Oil Shales in the Soil

In-ta Pochvovedeniya i Agrokhimii AN AzSSR, No 6, 1953, pp 121-126

Oil shale contains a great deal of organic matter and more nitrogen than manure and four times as much phosphorus. Its effectiveness in increasing productivity has been demonstrated. Experiments have shown that during composting of the shale in the seriozem (gray desert soil) the volume of organic matter does not decrease. The water-soluble phosphorus decreases slightly but nitrogen, humic acid, and fulvic acid increase slightly. It has been demonstrated that oil shale can be used as a source of organic substances, phosphorus, and nitrogen in fertilizing soils. (RZhBiol, No 2, 1955)

SO: Sum. No. 639, 2 Sep 55

YEDIGAROVA, N.N.

Humus in the western part of the Shirvan Steppe. Trudy Inst.pochv.  
1 ~~agrokhim.~~AN Azerb.SSR 7:145-151 '55. (MLRA 9:12)  
(Shirvan Steppe--Humus)

YEDIGAROVA, N.N.

Conversion of the organic matter of petroleum origin in Sierozem-Meadow soils. Trudy Inst.pochv.i agrokhim.AN Azerb.SSR 7:169-173  
'55. (MIRA 9:12)  
(Azerbaijan--Sierozem soils) (Humus)

GUSEYNOV, D.M.; YEDIGAROVA, N.N.

Stimulating effect of organic matter of a petroleum origin on the  
growth and development of plants. Dekl. AN Azerb. SSR 11 no.12:  
861-867 '55. (MLRA 9:7)

1. Institut pochvovedeniya i agrekhimii AN Azerbaydzhanskey SSR.  
(Growth promoting substances)



Y. G. A. D. I. N. N.  
GUSEYNOV, D.M.; YEDIGAROVA, N.N.

The stimulating action of an organic substance of petroleum origin on plant growth and development. Dokl. AN Azerb. SSR 11 no.4:273-278 '55.  
(MLRA 8:10)

1. Institut agrovedeniya i agrokhimii Akademii nauk Azerbaydzhan-skoy SSR

(Plants, Effect of chemicals on)

EDIGAROVA, N. N.

✓ Stimulating action of organic matter of petroleum origin on growth of plants and microorganisms. D. M. Guseinov, N. N. Edigárova, and G. S. Kasimova (Soil and Agrochem. Inst., Baku). *Fiziol. Rastenii* 3, 149-50 (1958).—Doses of 0.0002-0.005% of org. matter of petroleum industrial waste resulted in the greatest increase of growth of a wide variety of plants and typical soil microorganisms. Q. M. K.

3

YEDIGAROVA, N.N.

~~YEDIGAROVA, N.N.~~

Optical properties of substances of petroleum origin belonging  
to the humic acid type. Dokl. AN Azerb. SSR 13 no.8:889-891 '57.  
(MLRA 10:9)

1. Institut pochvovedeniya i agrokhimii Azerbaydzhanskoy SSR.  
Predstavleno akademikom AN Azerbaydzhanskoy SSR G.A.Aliyevym.  
(Humic acids--Optical properties)

*Card*  
YEDIGAROVA, N. N.: Master Agric Sci (diss) -- "The behavior of the organic substance of petroleum origin in serozem-meadow soil". Baku, 1958, published by the Acad Sci Azerb SSR. 20 pp (Min Agric USSR, Stalingrad Agric Inst), 150 copies (KL, No 6, 1959, 138)

GUSEYNOV, D.M.; YEDIGAROVA, N.N.

Effect of organic matter of petroleum origin on the  
development of tomato plants. Dokl. AN Azerb. SSR

16 no. 6:577-581 '60.

(MIRA 13:10)

(Tomatoes)

(Growth promoting substances)

YEDIGAROVA, N.N.

Effect of alfalfa on changes in the composition of organic matter  
and the nutrient content of soils. Izv. AN Azerb. SSR. Ser. biol.  
i med. nauk no.5:115-118 '61; (MIRA 14:8)  
(ALFALFA) (SOILS--COMPOSITION)

YEDIGARYAN, A. A.

Dissertation: "Depolarization for the Cathode Process of Separating Hydrogen With Oxygen." Cand Tech Sci, Kiev Polytechnic Institute, Kiev, 1953. (Referativnyi zhurnal-Khimiya, No 9, Moscow, May 54)

SO: SUM 218, 23 Dec 1954

YEDIGARYAN, A.A.; NADEZHGIN, D.S.

Concerning the review of the thermodynamic activity method. Ukr.  
khim.zhur. 20 no.1:103-106 '54. (MLRA 7:3)

1. Kiyevskiy politekhnicheskii institut, kafedra tekhnologii elektro-  
khimicheskikh proizvodstv. (Solution (Chemistry))  
(Thermodynamics)



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YEDIGARYAN, A. A.

5(4) PHASE I BOOK EXPLOITATION SOV/2216  
Soveshchaniye po elektrokhemii. 4th, Moscow, 1956.

Trudy... [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izdatel'stvo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.  
Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A. M. Prumkin (Resp. Ed.), Academician, O. A. Yesin, Professor, S. I. Zhurav (Resp. Secretary), B. M. Kabanov, Professor, S. I. Zhurav (Resp. Secretary), B. M. Kabanov, Professor, I. A. M. Kabanov, Doctor of Chemical Sciences, V. V. Losav, P. D. Losav, Professor, Z. A. Solov'yeva, V. V. Stender, Professor, and O. M. Florinovich; Ed. of Publishing House: M. G. Pogorelov; Tech. Ed.: T. A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes at metal electrodes and industrial electrolysis. Abstracts of reports are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

Kashchuk, O. S., and V. V. Stender. (Donoprotovsk Institute of Chemical Technology imeni P. I. Lebedevskiy). Polarization of Graphite Electrodes During the Anodic Separation of Chlorine 823

Buyanova, M. Ya., and O. A. Tsyganov (Institute of Chemistry, Academy of Sciences, USSR). Hydrogen Overvoltages at Electrodes With Homogeneous Surface 827

Bakov, A. A., K. I. Masova, and E. V. Kasatkina (Physicochemical Institute imeni L. Ya. Karpov). Mechanism of the Simultaneous Electrochemical Formation of Peroxydisulfuric Acid, Ozone and Oxygen at a Platinum Anode in Sulfuric Acid Solutions 834

Volkov, G. N., Z. L. Klitas, Ye. K. Susorova and M. V. Chertova. Influence of Surface-Active Substances on the Rate of Decomposition of Sodium Amalgams 841

Il'in, G. G., and V. I. Skripchenko (Novocherkassk Polytechnic Card 33/34

Transactions of the Fourth Conference (Cont.) SOV/2216

Institute imeni S. Ordzhonikidze). Influence of the Nature of an Electrolytic Cation on the Anode Process During the Electrolysis of Alkaline and Alkaline-Earth-Metal Chloride Solutions 845

Voronin, M. N. (Deceased), E. G. Prishchepchenko, A. A. Yedigaryan, O. V. Izbakova, I. G. Ryabchikov, Ch. Kh. Izizade, and S. V. Trukh (Kiyev Polytechnic Institute). Electrolytic Reduction of Oxygen at Porous Cathodes 849

Discussion [M. A. Fedotov, R. I. Kaganovich, Ye. M. Kuchinskii, G. N. Koshanov, and contributing authors] 856

AVAILABLE: Library of Congress

Card 34/34

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9-30-59

YEDIGARYAN, A.G.; KYAZUMOVA, S.A.; FEL'DMAN, Ye.D.

Method of a formal description of a language (based on material  
for a mathematical text). NTI no.12:44-45 '63.

(MIRA 17:6)

GRIGORYAN, V.M. (Yerevan); GYUL'MISARYAN, S.A. (Yerevan);  
DZHANPOLADYAN, T.K. (Yerevan); YEDIGARYAN, A.P. (Yerevan);  
MAILYAN, A.N. (Yerevan); MKHITARYAN, S.G. (Yerevan); PAPYAN, B.K.  
(Yerevan); POGOSOVA, S.S. (Yerevan); FEL'DMAN, Ye.D. (Yerevan)

Algorithm for Armenian-to-Russian machine translating. Part 3:  
Grammatical rules and their application. Probl. kib. no.14:  
267-287 '65. (MIRA 19:1)

1. Submitted March 23, 1964.

**"APPROVED FOR RELEASE: 09/19/2001**

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**CIA-RDP86-00513R001962320008-0"**

YEDIGARYAN, F.S., inzh.

Overall testing of bearing materials in case of rolling friction.  
Mashinostroenie no.5:12-15 S-0 '63. (MIRA 16:12)



KOSTETSKIY, B.I., prof.; YEDIGARYAN, F.S., inzh.; NATANSON, M.E., inzh.

Changes in chemical composition of very fine layers of friction surfaces  
of antifriction bearings during their operation. Izv.vys.ucheb.zav.;  
mashinostr. no.5:52-54 '64. (MIRA 18:1)

1. Kiyevskiy institut Grazhdanskogo vozdushnogo flota.

KOSTETSKIY, B.I., doktor tekhn. nauk, prof.; YEDIGARYAN, F.S., inzh.

Wear of antifriction bearings in gas media of various activity.  
Vest. mashinostr. 44 no.8:17-18 Ag '64.

(MIRA 17:9)

TITLE: Wear of ball bearings in gaseous media of various activity

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**APPROVED FOR RELEASE: 09/19/2001**

**CIA-RDP86-00513R001962320008-0"**

YEDIGARYAN, O. K.

Cand Agr Sci - (diss) "Appearance of better components of grass mixtures in garden beet crop rotations and their treatment." Yerevan, 1960. 26 pp; (Committee of the Council of Ministers Armenian SSR for Higher and Secondary Specialist Education); 150 copies; price not given; (KL, 5-61 sup, 197)

ANAN'YAN, A.K., doktor tekhn. nauk, prof.; BEK-MARMARCHEV, B.I.,  
kand. geogr. nauk; ZHAMAGORTSIYAN, V.N., kand. tekhn. nauk;  
CHITCHYAN, A.I., kand. sel'khoz. nauk; YEDIGARYAN, Z.P.,  
mlad. nauchnyy sotr.; SATIAN, M.A., kand. geol.-mineral.  
nauk; PAYRAZYAN, V.V., mladshiy nauchnyy sotr.; VEBER, V.V.,  
prof.; NAZARYAN, A.G., kand. tekhn. nauk; POKHSRARIYAN, M.S.,  
mladshiy nauchnyy sotr.; TER-ASTVATSATRYAN, M.I., mladshiy  
nauchnyy sotr.; VELIKANOV, M.A.; VELIKANOV, M.A., otv. red.;  
SHTIBEN, R.A., red. izd-va; KAPLANYAN, M.A., tekhn. red.

[Results of complex research on the Sevan problem] Rezul'taty  
kompleksnykh issledovaniy po Sevanskoj probleme. Erevan,  
Izd-vo AN Armyanskoi SSR. Vol.2. [Channel processes] Ruslovye  
protsessy. 1962. 255 p. (MIRA 15:7)

1. Akademiya nauk Armyanskoy SSR, Yerivan. Institut vodnykh  
problem. 2. Chlen-korrespondent Akademii nauk SSSR (for  
Velikanov).

(Sevan Lake region—Hydrology)

YEDIGARYAN, Z.P.

Lithology of Upper Triassic sediments in the northern slope  
of the Western Caucasus. Izv. AN Arm.SSR.Geol.i geog.nauki  
15 no.1:47-65 '62. (MIRA 15:3)

1. Institut geologicheskikh nauk AN Armyanskoy SSR.  
(Caucasus--Rocks, Sedimentary)

YEDIGARYANTS, G.G.

RYABCHINSKIY, Yu.V., red.; YEDIGARYANTS, G.G., red.; YERSHOV, P.R.,  
vedushchiy red.; MUKHINA, N.A., tekhn.red.

[Electric installation and repair work] Elektromontazhnye i  
elektroremontnye raboty. Moskva, Gos.nauchno-tekhn.izd-vo nef.  
i gorno-toplivnoi lit-ry, 1959. 386 p. (MIRA 13:6)

1. Moscow. Tsentral'noye byuro promyshlennykh normativov po  
trudu.

(Electric engineering)



YEDINAK, A.N. (Chernovtsy, ul. Kotlyarevskogo, d.6, kv.17)

Pin guide. Ortop., travm. i protez. 24 no.11:70-71 N '63.  
(MIRA 17:10)

1. Iz kafedry gospital'noy khirurgii (zav. - prof. V.L. Kherkin)  
Chernovitskogo meditsinskogo instituta (rektor - prof. M.M. Kovalev).

YEDINAK, A.N. (Chernovtsy, ul. Kotlyarevskogo, d.6/17)

Skeletal traction clamps. Ortop., travm. i protsz. 25 no.6:  
50-52 Je '64. (MIRA 18:3)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. V.L. Khenkin)  
Chernovitskogo meditsinskogo instituta (rektor - dotsent A.D.  
Yukhimets).

SOV/177-58-1-13/25

17(13)

AUTHOR: Yedinevskiy, V.G., Colonel of the Medical Corps

TITLE: The Problem of the Evaluation of the Causal Relationship of Soldier's Illnesses (Mutilations) (K voprosu ekspertizy i umoy svyazi zabolevaniy (uvechiy) voyennosluzhasnykh)

PERIODICAL: Voenno-meditsinskiy zhurnal, 1958, Nr 1, pp 52 - 56 (USSR)

ABSTRACT: The existing VTEK (Military Medical Expert Commission) medical examination formulates the causal relationship of diseases, as follows: does the disease result from the soldier's presence at the front or not; has the disease developed during military service? Has the disease no relationship to the Soviet Army? Above all, psychopathic cases have to be treated carefully. By examples and case histories the author

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SOV/177-58-1-13/25

The Problem of the Evaluation of the Causal Relationship of Soldiers' Illnesses

points out that the expert's evidence about the causal relationship of diseases has to be treated on an individual basis. The expert's evidence is also decisive for classifying the state pension.

Card 2/2

YEDINEVSKIY, V.G., polkovnik meditsinskoy sluzhby

Control of therapeutic and prophylactic work in medical institutions.  
Voen.-med.zhur. no.9:47-49 S '61. (MIRA 15:10)  
(MEDICINE, MILITARY)

YEDINOVICH, I.

Credit and development of the economy of the Lithuanian S.S.R.

Den. i kred. 15 no.9:12-19 S '57.

(MIRA 10:10)

(Lithuania--Credit)

~~EDINOVICH, I.~~

How the main office directs branches. Den. 1 kred. 16 no.5:48-50  
My '58. (MIRA 11:6)

(Mogilev Province—Banks and banking)

YEDINOVICH, I.

State Bank credit and the economy of Soviet Kirghizistan.  
Den. 1 kred. 20 no.11:20-23 N '62. (MIRA 16:1)

1. Upravlyayushchiy Kirgizskoy respublikanskoy kontoroy  
Gosbanka.

(Kirghizistan—Credit)



YEDINYI, YU. G.

Yedinyy, Yu. G.

"Ectopis of the Apertures of the Urinary Tract in Women." Kiev Order of  
Labor Red Banner Medical Inst imeni Academician A. A. Bogomolets.  
Urological Clinic. Kiev, 1954. (Dissertation for the Degree of Candidate  
in Medical Science)

So: Knizhnaya letopis', No. 27, 2 July 1955

YEDINYI, Yu.G., kand.med.nauk, GOYKHBERG, M.I. (Kiyev)

Report on the activities of the Kiev Urological Society in 1957.  
Urologia 23 no.4:75-76 J1-Ag '58 (MIRA 11:8)  
(KIEV--UROLOGY--SOCIETIES)

YEDINYY, Yu.G., kand. med. nauk.

Use of ultrasonics in the treatment of urinary calculi; review of the literature. Urologiia 24 no.1:64-66 Ja-F '59. (MIRA 12:1)

1. Iz urologicheskogo otdeleniya bol'nitsy imeni Otktyabr'skoy revolyutsii (Kiyev) i urologicheskoy kliniki (zab. - zasluzhemnyy deyatel' nayki prof. A.A. Chayka) Kiyevskogo meditsinskogo instituta.

(URINARY TRACT, calculi  
ther., ultrasonics, review (Rus))

(ULTRASONICS, ther. use  
urinary tract calculi, review (Rus))

TORGUSHINA, N.S., kand. med. nauk; YEDITKIN, R.O.

Hemangioendotheliomas of the stomach. Khirurgiia 40 no.2:91-93  
Ag '64. (MIRA 18:3)

1. Kafedra patologicheskoy anatomii (zav. - prof. M.L. Biryukov)  
Gor'kovskogo meditsinskogo instituta imeni Kirova i khirurgicheskoye  
otdeleniye (zav. R.O. Yeditkin) Gor'kovskoy oblastnoy bol'nitsy.

YEDKINA, V. D. Cand Med Sci -- (diss) "Changes in gastric secretion <sup>following</sup> ~~after~~  
hemorrhage and subsequent blood transfusions." L'vov, 1959. 20 pp (L'vov  
State Med Inst ), 200 copies (KL, 48-59, 116)

-48-

PETROV, D.G., dotsent; TKACH, Ye. A., starshiy nauchnyy sotrudnik; FEDOROVA, Z.P., starshiy nauchnyy sotrudnik; YEDKINA, V. D., nauchnyy sotrudnik

Loss of blood and blood transfusion in hypothermia. Nov. khir. arkh.  
no.2:59-63 Mr-Apr '59. (MIRA 12:7)

1. L'vovskiy nauchno-issledovatel'skiy institut perelivaniya krovi  
i neotlozhnoy khirurgii (nauchnyy rukovoditel (prof. I.I. Fedorov).  
(Adres avtorov: L'vov, ul. Pushkina, d.45. Nauchno-issledovatel'skiy  
institut perelivaniya krovi).

(HYPOTHERMIA) (HEMORRHAGE) (BLOOD TRANSFUSION)

PETROV, D.G., dotsent; KRIVORUCHKO, R.A.; TURCHIN, V.L.; YEDKINA, V.D.

Centralized supply of flasks with factory produced blood preservatives. Probl.gemat.i perel.krovi no.7:50-53 '61.

(MIRA 14:9)

1. Iz L'vovskogo nauchno-issledovatel'skogo instituta pereli-vaniya krovi (dir. - dotsent D.G. Petrov).  
(BLOOD---COLLECTION AND PRESERVATION)

44980

S/358/62/000/001/002/013  
D296/D307

27 1234  
27 1100  
AUTHORS:

Sukhomlinov, B. F., Yedkina, V. D. and Yakovenko, A.N.

TITLE:

The electrophoretic pattern of serum and liver proteins after exposure to ionizing radiation

SOURCE:

L'vov. Universytet. Problema lyaboratoriya radiobiologii. Biologicheskoye deystviye radiatsii, no. 1, 1962, 8-25

TEXT: The authors investigated by means of electrophoresis the serum protein fractions, and the soluble proteins of dogs exposed to radiation. Dogs weighing 8 - 25 kg were exposed to a single dose of x rays ranging from 600 to 1000r from a distance of 1 m, at 14r/min. Blood samples were taken under standard conditions from the saphenous vein. The soluble proteins of the liver were obtained by in vitro perfusion, which yielded a solution containing up to 4% soluble proteins. The electrophoresis was carried out on agar gel, with a field of 4 v/cm and current of 18 - 20 mA, at pH 8.6, on 12 - 15 cm strips. The authors obtained 6 - 8 fractions

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S/858/62/000/001/002/013  
D296/D307

The electrophoretic pattern ...

from the serum proteins and 10 - 15 fractions from the soluble liver proteins within 3.5 - 4 hours. From the electrophoretic strips of the serum of healthy dogs the authors found 6 - 8 well-separated fractions (albumins,  $\alpha_1$ - and  $\alpha_2$ -,  $\beta_1$ -,  $\beta_2$ - and  $\gamma$ -globulins).

In some cases the  $\beta_1$  fraction could be subdivided into  $\beta_1^1$  and  $\beta_1^2$ .

Four days after exposure, marked changes could be observed in the electrophoretic pattern of the serum protein fractions. The proportion of albumin decreased and that of  $\alpha_2$ -globulin increased. X

These changes were even more marked at the peak of radiation sickness, with an additional increase in the  $\alpha_3$ -fraction. At this time a completely new fraction, the so-called  $\alpha_4$ -fraction appeared, which according to the authors is a sign of the impending death of the animal. In those animals which recovered from radiation sickness, the recovery was preceded by the disappearance of this fraction. The  $\beta_1$ - and  $\beta_2$ -fractions usually showed an initial decrease followed by an increase. In the authors' opinion, this increase is

Card 2/3

The electrophoretic pattern ...

S/858/62/000/001/002/013  
D296/D307

connected with an immunological reaction, such as the formation of antibodies against denaturated proteins formed as a consequence of the oxidation of SH-groups. The 10 - 15 fractions, found in the electrophoretic pattern of the soluble liver proteins, could be grouped according to their mobility. Each group corresponded to one of the serum protein fractions. It was found that the changes in these fractions were quite similar to those found in the serum protein fractions but were even more marked. The authors conclude that radiation affects the protein synthesis in the liver. There are 11 figures and 11 tables.

ASSOCIATION: L'vovskiy nauchno-issledovatel'skiy institut perelivaniya krovi i laboratoriya radiobiologii L'vovskogo universiteta (L'vov Scientific Research Institute of Blood Transfusion and Laboratory of Radiobiology, L'vov University) X

Card 3/3

KARIMOV, Z.N.; SAVCHENKO, S.S.; YEDLICHKA, A.E.

Picture of peripheral blood and its coagulation time in rabbits  
with a transplanted osteogenic sarcoma. Trudy Inst. kraev.  
eksper. med. no.5:184-187 '63. (MIRA 17:6)

BALZHI, M.F.; BEREZKIN, P.N.; GOL'DSHTEYN, Ya.Ye.; GAL'PERIN, Ye.B.;  
YEDLICHKO, V.V.; KERAS, A.F.; LEKUS, I.D.; POTEKUSHIN, N.V.;  
POZDNYISHEV, V.M.; SUBBOTIN, N.A.; SAVINTSEV, R.I.; TAMBOVSKIY,  
V.M.; SHEREMET'YEV, A.D.; BAKSHI, O.A., kand. tekhn. nauk,  
retsenzent; BONDIN, Ye.A., inzh., retsenzent; BOYKO, F.I., inzh.,  
retsenzent; VASIN, Yu.P., inzh., retsenzent; LAZAREV, A.A., inzh.,  
retsenzent; SOROKIN, A.I., inzh., retsenzent; KON'KOV, Arkadiy  
Sergeyevich, dots., red.; DUCINA, N.A., tekhn. red.

[Economy of metals in the machinery industry]Ekonomiya metallov  
v mashinostroenii. [By]M.F.Balzhi i dr. Moskva, Mashgiz, 1962.  
235 p. (MIRA 16:2)

(Machinery--Design and construction)  
(Metals, Substitutes for)

SHUKHTINA, A.M.; YEDLINA, Ye.A.

Changes in the fundus oculi in the early stages of hypertension  
in young persons; from polyclinical data. Sov.med. 24 no.3:55-59  
Mr '60. (MIRA 14:3)

1. Iz fakul'tetskoy terapevticheskoy kliniki (zav. - prof. T.S.  
Istamanova) i polikliniki I Leningradskogo meditsinskogo instituta  
imeni I.P.Pavlova (glavnyy vrach - kand.med.nauk A.M.Shukhtina.  
(HYPERTENSION) (EYE-DISEASES)

YEDLINSKIY, Z. (Pol'skaya Narodnaya Respublika); FILIPSKA, M. (Pol'skaya Narodnaya Respublika)

Polarographic method for the simultaneous determination of  
divalent and tetravalent lead in minium. Lakokras. mat. i  
ikh prim. no.6:52-55 '61. (MIRA 15:3)  
(Lead) (Polarography)

1964. 2027-2074

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthal and Whistler (1973). The total chlorophyll content was determined by the method of Arar and Cook (1980).

of Steel and Alloys /



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**CIA-RDP86-00513R001962320008-0"**

PAVLOVSKAYA, V.S.; YEDNERAL, A.F.

Use of the nuclear magnetic resonance method in studying inhomogeneous  
solid solutions of Al - Ag. Fiz. tver. tela 6 no.7:2072-2074 J1 '64.  
(MIRA 17:10)

1. Moskovskiy institut stali i splavov.

EDNERAL F.P.		PROCESSING AND PROPERTIES INDEX	
<p>Effect of repeated remelting on the properties of structural steel. P. P. Palperal (Moscow Steel Inst.). <i>Stal</i> 6, 271-81 (1946). The purpose of this investigation was to study the effect of repeated remelting of alloy steel on its properties and to establish conditions under which alloy scrap can be fully utilized without loss of alloying elements. The investigation was carried out on a steel contg. C 0.25-0.42, Mn 0.8-1.1, Cr 1.2-1.4, and V 0.15-0.25%. Remelting was tried under various conditions: with and without oxidation, mixed charges and charges entirely of remelt, fining under various slags, etc. Remelting did not impair the density of the metal when the process was carried out properly. Metal remelted entirely of scrap when properly deoxidized under a MgO-Al<sub>2</sub>O<sub>3</sub> slag contained very little gas. Repeated remelting did not impair thorough deoxidation. Repeated remelting did not raise the H content in the metal. To reduce the H content in the metal, deoxidation with C should be prolonged, and FeSi introduced as late as possible. Unless precautions are taken remelted metal will contain more N. With proper practices this can be obviated. Generally, lime tended to increase the H in the metal while CO was effective in driving gas out. It is advisable to carry out the fining under high-grade freshly burnt lime. If the lime is unavailable good results can be obtained with a slag of the compn. MgO 40-60, SiO<sub>2</sub> 20-25, Al<sub>2</sub>O<sub>3</sub> around 10, and CaO 15-20%.</p> <p style="text-align: right;">M. Horch</p>		<p>1ST AND 2ND CROERS</p> <p>100 AND 4TH CROERS</p>	
<p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>		<p>REGION 83M14V</p>	
<p>REGION 83M14V</p>		<p>REGION 83M14V</p>	

YEDNERAL, F. P.

Samarin, A. M. and Yedneral, F. P., "Eliminating Nitrogen in the Process of Smelting in an Electric Arc Furnace." Symposium, "Properties of Steel," Metallurgizdat, 1949.

21777 SAMARIN, A. M.; i YEDMERAL, F. P.

Udalenie azota v protsesse plavki v dugovoy elektricheskoy pechi.

Sbornik (Mosk. in - t stali im. Stalina), 23, 1949, s. 46-61.

Bibliogr: 14, NAZV.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949

EDNERAL, F.P.

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 105 - I

BOOK

Call No.: TN685.35

Author: EDNERAL, F. P.

Full Title: ELECTROMETALLURGY (General Course)

Transliterated Title: Elektrometallurgiya (Obshchiy kurs)

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of Scientific and Technical Literature  
on Ferrous and Non-ferrous Metallurgy

Date: 1950

No. pp.: 552

No. of copies: 7,000

Editorial Staff

Editor: None

Tech. Ed.: Mikhaylov, V. V.

Appraiser: None

Editor-in-Chief and Others: The author

expresses thanks for helpful advice to:

Corresponding Member of the Academy of

Sciences, A. M. Samarin; Prof. Dr.

V. P. Elyutin; Prof. Dr. P. Ya. Ageev;

Prof. Dr. N. B. Okorokov; Assistant

Prof. Bach. In Tech. Sci. N. M. Chuyko,

R. N. Grigorash, A. A. Yaskevich and

Engineer Ya. M. Bokshitskiy.

EDNERAL, F.P.

Elektrometallurgiya (Obshchiy kurs)

Call No.: TN685.E3

AID 105 - I

Text Data

Coverage: This textbook describes the equipment of steel smelting - (both arc and induction) and ferrous alloy furnaces, the technology of smelting and casting steel and alloys, and problems of industrial safety and the arrangement of equipment. Much attention is given to the description of the lining of electric furnaces.

Purpose: Approved as a text by the Ministry of Higher Education for specialists in metallurgy in higher educational institutions.

Facilities: In the first chapter, plants and electric power installations important in the historical development of electrometallurgy are mentioned.

No. of Russian and Slavic References: None

Available: Library of Congress.

2/2

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CIA-RDP86-00513R001962320008-0

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R001962320008-0"



YEDNERAL, F.P., dotsent, kandidat tekhnicheskikh nauk; VISHNYAKOV, A.V.,  
kandidat tekhnicheskikh nauk.

Protection of immersion thermocouples during temprature measurements  
in electric furnaces. Sbor.Inst.stali no.32:161-166 '54.  
(MLRA 10:5)

(Thermocouples)

YEDNERAL, Fedor Prokop'yevich; BOKSHITSKIY, Ya.M., redaktor; CHERNYAK, I.G.,  
redaktor; VAINSHTEYN, Ye.B., tekhnicheskiy redaktor

[Electrometallurgy of steel and ferroalloys; a general course] Elektro-  
metallurgiya stali i ferrosplavov; obshchii kurs. Moskva, Gos.nauchno-  
tekhn. izd-vo lit-ry po cherno i tsvetnoi metallurgii, 1955. 510 p.  
(Electrometallurgy) (MLRA 9:1)

**"APPROVED FOR RELEASE: 09/19/2001**

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**APPROVED FOR RELEASE: 09/19/2001**

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~~YEDNERAL~~, Fedor Prokop'yevich; FILIPPOV, Anatoliy Fedorovich; ROZENTSVEYG,  
I.A.D., redaktor izdatel'stva; EVENSON, I.H., tekhnicheskiy redaktor

[Calculations in the electrometallurgy of steel and ferrous alloys]  
Raschet'y po elektrometallurgii stali i ferrosplavov. Moskva, Gos.  
nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii,  
1956. 188 p. (MLRA 9:12)

(Steel--Electrometallurgy)

(Iron alloys--Electrometallurgy)

YEDNERAL, F.P.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 59 (USSR)

AUTHOR: Yedneral, F.P.

TITLE: Effect of Heat Conditions on the Nitrogen Content of Electric Steel (Vliyaniye usloviy plavki na sodержaniye azota v elektro-stali)

PERIODICAL: V sb.: Proiz-vo stali. Moscow, Metallurgizdat, 1956, pp 12-22

ABSTRACT: The results of experimental heats made in electric-arc furnaces of 0.1, 0.5, 20, and 40 t capacity are presented. It is established that  $[N]$  increases if the slag is produced by lime. Replacement of lime by limestone diminishes  $[N]$ . Carburization of the exposed metal under current increases  $[N]$ .  $[N]$  diminishes during the reducing period in the presence of acid and magnesia-silicon slags. When working with carbide slags, C deoxidation is accompanied by diminution in  $[N]$ , while Si deoxidation increases it. Addition of Fe-Ti to the metal covered by slag diminishes  $[N]$ , while addition to the exposed metal is accompanied by a small rise in  $[N]$ . Gas blow (Ar,  $CO_2$ ) over the metal during the period of reduction is a good method for removing nitrogen.

Card 1/1

F. Ye.

1. Steel--Nitrogen absorption--Test results 2. Steel--Manufacture  
--Effects of slags 3. Slags--Effectiveness--Test results 4. Electric  
furnaces--Performance--Test results

YENDERAL, Fedor Prokop'yevich -- awarded sci degree of Doc Tech Sci  
for the 12 Dec 57 defense of dissertation: "Electrometallurgy of steel  
and ferro-alloys" (State Publishing House of Metallurgical Literature  
[Metallurgizdat], 1955) at the Council, Mos Steel Inst imeni Stalin;  
Prot No 14, 21 May 58.

(BMVO, 11-58,19)

137-58-6-11797

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 85 (USSR)

AUTHOR: Yedneral, F.P.

TITLE: Organization of the Production of Electric Steel by the Duplex Process (Organizatsiya proizvodstva elektrostali dupleks-protssom)

PERIODICAL: V sb.: Primeneniye kisloroda v metallurgii. Moscow, Metallurgizdat, 1957, pp 173-175

ABSTRACT: The shortcomings of duplex (D) production of steel by open-hearth and electric furnace and by basic converter without O<sub>2</sub> and electric furnace, and of the utilization of large amounts of molten iron in electric furnace charges are set forth. Specifically, the difficulty of synchronizing the work of the furnaces in the first instance, the high [N] in the second, and the short life of the lining in the third are noted. It is pointed out that in D work with a basic converter using O<sub>2</sub> and an electric furnace, the semifinished product and the electric steel may both be recovered with low [N], in amounts of 0.005-0.007 and 0.01%, respectively. In this case it is possible to use ordinary steel-making pig in the converter and obtain a semifinished product

Card 1/2



137-58-6-11797

Organization of the Production of Electric Steel by the Duplex Process

with the required [C]. Synchronization of the electric furnaces and the converters is easily accomplished, the output of the electric furnaces is doubled, and the consumption of energy and of electrodes is cut respectively to 300 kwh and 2.5-3.0 kg per ton of steel. This also permits a 40% reduction in required transformer capacity and a reduction in electrode diameter. The fundamental data for the design of a department employing the D and capable of producing 1 mill. t of electric steel per year are adduced.

A.Sh.

1. Steel--Production
2. Furnaces--Operation
3. Furnaces--Effectiveness
4. Furnaces--Equipment

Card 2/2

137-58-6-11775

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 81 (USSR)

AUTHOR: Yedneral, F.P.

TITLE: Oxygen Applications in Electric Steel Foundry (Primeneniye kisloroda pri elektroplavke stali)

PERIODICAL: V sb.: Primeneniye kisloroda v metallurgii. Moscow, Metallurgizdat, 1957, pp 285-289

ABSTRACT: Advantages, procedures, and performance indices of the electrical smelting of stainless, structural, tool, and plain carbon steels with  $O_2$  are described. It is suggested that the furnace be serviced with bulk material consisting 30% of magnesite powder, 45% of ferrous dolomite, and 25% of fine-ground Cr ore. In making stainless steel, the desirability of deoxidizing the slag (after blowing the bath with  $O_2$ ) by Si-Cr with 50% Cr and 0.02-0.03% C is noted, making it possible to recover up to 93% of the Cr from the waste. It is also of advantage, after blowing, to add stainless steel rejects to reduce the temperature of the metal. The use of  $O_2$  in smelting structural and tool steels makes it possible to improve the dephosphorization of the metal by a short blow of the bath at the end of the

Card 1/2

137-58-6-11775

### Oxygen Applications in Electric Steel Foundry

melt-down of the charge, addition of fluxes to the furnace, and slagging off; a reduction in the duration both of melt-down and of oxidation of the metal by 30 min and an accelerating the heating of the bath, with a 15% increase in the output of the furnace is thus achieved. The use of  $O_2$  when these steels are made by the remelting process makes it possible to increase the amount of alloyed scrap in the charge and reduce the consumption of soft Fe, reduce burning loss of alloying elements, and make use of Cr-Si and Cr-Si-Mn steel scrap. It is emphasized that the quality of steel is never impaired by the use of  $O_2$  but that it is oftentimes improved.

A.Sh.

1. Oxygen--Applications
2. Oxygen--Effectiveness
3. Electric furnaces--Operation

Card 2/2

YEDNERAL, F. P.

TITLE: Book Review - by Speranskiy, V.G.

133-5-9/27

PERIODICAL: "Stal" (Steel), 1957, No.5, pp. 423-424 (U.S.S.R.)

ABSTRACT: F.P. Yedneral "Electrometallurgy of steel and ferro-alloys, (General Course)." (Elektrometallurgiya stali i ferrosplavov (obshchiy kurs), Metallurgizdat, Moscow, 1955, 510 pages. Except for the pointing out of a few errors or inaccuracies, which can be corrected in the next edition, the reviewer considers that the book is extremely useful.

AVAILABLE:

Card 1/1

YEDNERAL, F.P.

DUBROV, N.F., kand. tekhn. nauk; MIKHAYLOV, O.A., kand. tekhn. nauk;  
 FEL'DMAN, I.A.; DANILOV, A.M.; SOROKIN, P.Ya., kand. tekhn. nauk,  
 starshiy nauchnyy sotrudnik; BUTAKOV, D.K., kand. tekhn. nauk,  
 dots.; SOYFER, V.M.; LATASH, Yu.V., mladshiy nauchnyy sotrudnik;  
 ZAMOTAYEV, S.P.; BEYTEL'MAN, A.I.; SAPKO, A.I.; PETUKHOV, G.K.,  
 kand. tekhn. nauk; YEDNERAL, F.P., kand. tekhn. nauk, dots.;  
 LAPOTYSHKIN, N.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik;  
 ROZIN, R.M.; NOVIK, L.M., kand. tekhn. nauk, starshiy nauchnyy  
 sotrudnik; LAVRENT'YEV, B.A.; SHILYAYEV, B.A.; SHUTKIN, N.I.;  
 GNUCHEV, S.A., kand. tekhn. nauk, starshiy nauchnyy sotrudnik;  
 LYUDZEMAN, K.F., doktor-inzh., prof.; GRUZIN, V.G., kand. tekhn.  
 nauk; BARIN, S.Ya.; POLYAKOV, A.Yu., kand. tekhn. nauk; FEDCHENKO,  
 A.I.; AGEYEV, P.Ya., prof., doktor; SAMARIN, A.M.; BOKSHITSKIY,  
 Ya.M., kand. tekhn. nauk; GARNYK, G.A., kand. tekhn. nauk;  
 MARKARYANTS, A.A., kand. tekhn. nauk; KRAMAROV, A.D., prof.,  
 doktor tekhn. nauk; TRIDER, L.I.; DANILOV, P.M.

Discussions. Biul. TSNIICM no.18/19:69-105 '57. (MIRA 11:4)

1. Direktor Ural'skogo instituta chernykh metallov (for Dubrov).
2. Direktor TSentral'nogo instituta informatsii chernoy metallur-  
 gii (for Mikhaylov).
3. Nachal'nik nauchno-issledovatel'skogo  
 otdela osobogo konstruktorskogo byuro tresta "Elektropech'" (for  
 Fel'dman).
4. Nachal'nik martenovskoy laboratorii Zlatoustovskogo  
 metallurgicheskogo zavoda (for Danilov, A.M.).
5. Laboratoriya  
 protsessov stalevareniya Instituta metallurgii Ural'skogo filiala  
 AN SSSR (for Sorokin).

(Continued on next card)

DUBROV, N.F.---(continued) Card 2.

6. Ural'skiy politekhnicheskiy institut (for Butakov). 7. Starshiy inzhener Bryanskogo mashinostroitel'nogo zavoda (for Soyfer). 8. Institut elektrosvarki im. Patona AN URSS (for Iatash). 9. Nachal'nik TSentral'noy zavodskoy laboratorii "Uralmashzavoda" (for Zamotayev). 10. Dnepropetrovskiy metallurgicheskiy institut (for Sapko). 11. Moskovskiy institut stali (for Yedneral). 12. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Gruchev, Lapotyshkin). 13. Starshiy master Leningradskogo zavoda im. Kirova (for Rozin). 14. Institut metallurgii im. Baykova AN SSSR (for Novik, Polyakov, Garnyk). 15. Nachal'nik tekhnicheskogo otdela zavoda "Bol'shevik" (for Lavrent'yev). 16. Starshiy inzhener tekhnicheskogo otdela Glavspetsstali Ministerstva chernoy metallurgii (for Shilyayev). 17. Zamestitel' nachal'nika tekhnicheskogo otdela zavoda "Elektrostal'" (for Shutkin). 18. Freybergskaya gornaya akademiya, Germanskaya Demokraticheskaya Respublika (for Lyudeman). 19. Zaveduyushchiy laboratoriyey stal'nogo lit'ya TSentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya (for Gruzin). 20. Starshiy master elektrostaleplavil'nykh pechey Uralvagonzavoda (for Barin). 21. Zamestitel' nachal'nika elektrostaleplavil'nogo tsekha zavoda "Sibelektrostal'" (for Fedchenko). 22. Zaveduyushchiy kafedroy metallurgii stali i elektrometallurgii chernykh metallov Leningradskogo politekhnicheskogo instituta (for Ageyev). 23. Zamestitel' direktora Instituta metallurgii im. Baykova AN SSSR, chlen-korrespondent AN SSSR (for Samarin).

(Continued on next card)

DUBROV, N.F.---(continued) Card 3.

24. Nachal'nik laboratorii Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii (for Bokshitskiy). 25. Zaveduyushchiy kafedroy elektrometallurgii Sibirskogo metallurgicheskogo instituta (for Kramarov). 26. Nachal'nik elektrostaleplavil'nogo tsokha Kuznetskogo metallurgicheskogo kombinata (for Teder). 27. Nachal'nik elektrometallurgicheskoy laboratorii Kuznetskogo metallurgicheskogo kombinata (for Danilov, P.M.).

(Steel--Metallurgy)

EDNERAL, F.P.

LEONIDOV, N.K.

55(5) FROM 1 BOOK REFERENCE 807/197

Abstracts metal USSR. Earliest machinery & technology information

Metallurgy USSR, 1971-1977, t. 1. (Metallurgy of the USSR, 1971 - 1977, Vol. 1) Moscow, Metallurgizdat, 1978. 745 p. 5,000 copies printed.

Ed. (Title page): L. P. Rudin, Academician) Ed. (Inside book): G. V. Popov; Tech. Ed.: O. G. Baber.

NOTE: The book is intended for scientific workers and engineers in metallurgical plants and in the machine-building industry. It may also be used by students in advanced courses in metallurgical vases.

CONTENTS: This collection of articles covers extensively practical and theoretical developments in Soviet metallurgy during the last 40 years. The material deals with the discovery and development of the major ore deposits and the growth of the metal industry in various parts of European and Asiatic USSR. Research institutes, laboratories, their location, and the names of the scientists and engineers involved are listed. Many papers contain so many references and names of various personalities that it was considered beyond the scope of the coverage of each article to list them. The authors claim that the processes, methods and theories described in this book reflect the most recent developments in Soviet metallurgy.

Chart 1/41

Metallurgy of the USSR (Cont.)

807/197

270

Gilabov, M.A. Development of Furnace Theory in the USSR  
The author traces the development of scientific design of furnaces in the Soviet steel industry. The application of physical and chemical principles is presented in chronological order. The theoretical aspects of furnace operation and combustion processes are still under investigation. There are 52 references, 50 Soviet, 1 French, and 1 English.

285

Adams'Yev, S.O. Production of Converter Steel in the USSR  
An outline is given of the development of converter steel production in the USSR. It is stated that present developments in the steel industry favor the converter process, especially the Thomas process, as it is suitable for melting high-phosphorus ores. The ores found in the Karabank area and the phosphoric ores in the Kuznetsky area in Kazakhstan are treated by the Thomas process. Blowing with oxygen is said to have opened new possibilities for the converter process in the USSR. There are 26 Soviet references.

295

Marina, P.Z. Production of Electric Steel in the USSR  
The author traces the development of electric steel production from the early twenties to the Fifth Five Year Plan. Production of steel is

Metallurgy of the USSR (Cont.)

807/197

to be increased by 79 percent as compared to the 1955 level. The use of oxygen is also to be increased. New electric furnaces of 150 ton capacity and electromagnetic transfer of metal are to be designed. The intensification of mechanization of furnace operations is to be speeded up. At present the largest furnaces in the USSR has a capacity of 40 tons as compared to the American electric furnaces of 150 ton capacity, and the author stresses the fact that the USSR lags far behind USA in this field. New furnaces of 50 ton capacity are to be introduced shortly. There are 3 Soviet references.

310

Chapalov, S.V. Relationship Between the Main Parameters and the Coefficient of Production of Electric Furnaces  
The author investigated the relationship between the capacity or size of the furnace and the fundamental coefficient of production which is defined as the "productivity per unit of production." The factors of power consumption per unit of production, the specific electric energy, the relative position of the object to be heated, the work cycle of the furnace, and the relationships between the factors, according to the numerous formulas and graphs contained in the text.

Chart 9/21



*VEDNERAL, F.P.*

AUTHORS: *Vedneral, F.P.*, Candidate of Technical Sciences, and *Khlystov, N.F.*, Engineer. 133-1-11/24

TITLE: Intensification of the Oxidising Period During Smelting Structural Steel in Electric Furnaces (Intensifikatsiya okislitel'nogo perioda elektroplavki konstruktsionnoy stali)

PERIODICAL: Stal', 1958, No.1, pp. 43 - 48 (USSR).

ABSTRACT: The possibility of attaining the de-sulphurisation of metal during the melting period and an intensification of the oxidation period by blowing oxygen was investigated on a steel 45XHM (composition %: C 0.42-0.50; Mn 0.5-0.8; Si 0.17-0.37; Cr 0.8-1.1; Ni 1.3-1.8; Mo 0.2-0.3; V 0.1-0.2; P and S less or equal to 0.03). The initial experiments during which the technology of smelting was established were carried out in the Moscow Institute of Steel (Moskovskiy institut stali) on 1/2 ton electric furnaces. In 1956, 21 heats in a 20-ton electric arc furnace were carried out on the Zlatoust Works. The charge consisted of carbon steel scrap (about 67%), chromium-nickel-molybdenum steel waste (about 25%), pig (about 7%), nickel and coke (about 120 kg per 23 tons of the charge). In order to obtain melting slag of a required basicity to de-phosphorise during the melting period, about 2.5% of lime was charged towards the furnace walls. At the end of the melting

Card 1/4

133-1-11/24

Intensification of the Oxidising Period During Smelting Structural Steel in Electric Furnaces

period when a small amount of unmelted material still remained, 0.5% of iron ore and 0.5% of lime was added and the bath was blown with oxygen for 5 minutes through an unlined iron tube, 6 m long, 3/4" diameter at a pressure of oxygen of 8 atm. The addition of ore was done in order to froth the slag and to prolong the service life of the tube. As a result of the 5 min. oxygen blow (40-50 m<sup>3</sup> of oxygen per heat) the content of phosphorus was reduced from 0.04-0.045% to 0.018-0.020%. The content of carbon after melting was 0.8-1.0% (on average 0.88%); the temperature of the metal 1 480 - 1 540 °C. After taking a sample of metal for the determination of oxygen, the first sample of slag and measuring the temperature of the bath with an immersion thermocouple, about 50-60% of slag was removed. After adding lime and fluorspar (about 1%) as well as calcium molybdate, the decarburisation process was carried out with oxygen blowing. This was done using lined tubes (3/4" dia.) at a pressure of 10 atm., in two stages. After the first 5 minutes of blowing, a sample for analysis was taken and then blowing continued for another 5-6 min. During blowing the electric current was cut off. When the required content of carbon was attained, silicon-manganese (2 kg/ton) was added and

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after taking samples and measuring the temperature, the oxidising slag was removed. During the decarburisation process, a further decrease in the phosphorus content of metal to 0.011 - 0.013% usually took place (Fig.1). The dependence of phosphorus content in the first sample of metal after melt out - Fig.2; variation in the degree of oxidation (% Fe total) of slags during the oxidising period in experimental heats - Fig.3; the influence of the degree of oxidation of slag (oxidising period) on the de-phosphorisation - Fig.4; a comparison of the oxygen content of metal during the oxidising period in various heats with the equilibrium C-O curve - Fig.5; changes in the manganese content during the oxidising period - Fig. 6.

Conclusions: 1) An addition of 3% of lime to the charge and a 5-minute blowing of the ladle with oxygen (about 600 m<sup>3</sup>/hr) at the end of the melting period lead to sufficiently complete de-phosphorisation. Slag basicity not lower than 2.2 and metal temperature of 1 500 °C are recommended. 2) A part of phosphorus is additionally removed during oxygen boiling; slag basicity during this period should be 2.6 - 3.0. 3) The velocity of decarburisation in a 20-ton furnace at a blowing

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rate of about  $900 \text{ m}^3/\text{hr}$  (at 10 atm) and at an initial carbon content of 0.8-1% reaches about 3% C/hr. In order to attain the temperature of the metal of  $1610^\circ \text{C}$  at the end of oxidising period 0.5% of carbon should be oxidised at a rate of 0.05%/min.

4) The content of Fe total in slags after melting and at the end of oxidising period differs little. Increased content of Fe total corresponds to comparatively low temperatures.

5) After the preliminary partial deoxidation of metal with silicon-manganese, the content of oxygen in the metal remains higher than that corresponding to equilibrium with carbon.

6) The manganese content remains at a high level (without ferro-manganese additions) which is determined by the high temperature of the process. 7) As a result of carrying out de-phosphorisation, together with melting and an intensification of the decarburisation process, the duration of the oxidising period was decreased in the experimental heats by 30%. Some additional shortening of the process can be obtained by speeding up the analysis of metal samples for carbon. There are 6 figures.

ASSOCIATION: Moscow Institute of Steel (Moskovskiy institut stali)  
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Library of Congress

AVAILABLE:  
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SOV/137-58-9-18625

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 66 (USSR)

AUTHORS: Yedneral, F.P., Kalinina, Z.M.

TITLE: Intensification of the Reducing Period in the Melting of Structural Steel in an Arc Furnace (Intensifikatsiya vosstanovitel'nogo perioda plavki konstruktsionnoy stali v dugovoy elektropechi)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chernaya metallurgiya, 1958, Nr 2, pp 48-63

ABSTRACT: 21 experimental melts of 45KhNMFA steel were run in 20-t basic electric arc furnaces in accordance with a procedure including blowing the bath with O<sub>2</sub> at the end of the oxidizing period; addition of 2 kg Si-Mn per ton metal after the blow and of 3/4 kg Mn-Si-Al or Si-Mn-Ca per t after the skimming of the Fe-Cr oxidizing slag, the alloys being in 4:1:0.5 and 1:1:0.5 ratio, plus slag formers in the amount of 3.5% of the weight of the metal; deoxidation of the slag by ground Si-Ca and coke breeze; holding of the metal under the white slag for 40 min; introduction of 0.3-0.4 kg Al/t before tapping, and 0.7 kg Si-Ca/t in the ladle. The total length of the refining period was

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*Moscow Steel Inst. and Zlatoustovskiy Metallurgical Plant*

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Intensification of the Reducing Period in the Melting (cont.)

60-70 min. By sampling the slag and metal during the melt and by tests of the finished rolled product it was established that the O, N, and H contents before tapping were respectively 0.0042-0.0048%, 0.0094% and 4.9 cm<sup>3</sup>/100 g, while the final metal contained 0.012% S. The macroscopic structure and mechanical properties of the steel in these experimental heats was satisfactory, and seams were fewer than in steel melted the usual way, while contamination with nonmetallic inclusions was no higher than with the latter. The duration of the experimental heat was 17% shorter than the usual, consumption of electrical energy dropped 17%, and O<sub>2</sub> consumption came to 10 m<sup>3</sup>/t. Bibliography: 6 references.

A.Sh.

1. Steel--Melting    2. Furnaces--Applications    3. Industrial production  
--Development

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report submitted for the 5th Physical Chemical  
Conference on Steel Production, Moscow-- 30 Jun 1959.

VEDNERAL, F.P.

FRASE I BOOK EXPLOITATION SOV/4782

Moscow. Instytut stali

Proizvodstvo i obrabotka stali i splavu (Production and Treatment of Steel and Alloys) Moscow: Metallurgizdat, 1960. 462 p. (Series: Itsa Stalnikh, 39) 2,100 copies printed.

Ka. i. Ye. A. Bopko. Ed. of Publishing House: S. I. Zengeri Tech. Ka. i. N. R. Klyamant, Editorial Council of the Institute: M. A. Glinokov, Professor, Doctor of Technical Sciences; N. M. Gikson, Doctor of Technical Sciences; A. A. Zhukhovitskiy, Professor, Doctor of Technical Sciences; I. N. Kikh, Professor, Doctor of Technical Sciences; B. O. Lavshin, Professor, Doctor of Technical Sciences; A. P. Lyubimov, Professor, Doctor of Technical Sciences; I. M. Pavlov, Corresponding Member of the Academy of Sciences USSR; and A. M. Kabanov, Professor, Doctor of Technical Sciences.

Purpose: This book is intended for technical personnel in industry, scientific institutions and schools of higher education, dealing with open-hearth and electric-furnace steelmaking, metal rolling, physical metallurgy, metallography, and heat-treatment. It may Card 1/10

also be used by students specializing in these fields.

Contents: The book contains results of theoretical and experimental investigations of metallurgical and heat-engineering processes in open-hearth and electric furnaces. Data are included on the following: desulfurizing of pig iron outside the blast furnace; interaction of oxides of the carbide-forming metals with solid carbon; the change of content of gases in the bath of the open-hearth furnace in various periods of melting; intensification of the electric melting of steel, etc. Other articles deal with the nonuniformity of deformation in rolling; the study of the continuous rolling process; the dependence of the friction-slipage coefficients in rolling on a number of factors; and other problems in the preservation of metal. Methods and techniques of physical metallurgy and physical metallurgy are also included. The book is written in Russian. References accompany most of the articles. There are 207 references, both Soviet and non-Soviet.

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Technical Sciences [Department of Metallurgy]. Use of Oxygen and Complex Decarburization for Intensification of the Electric Furnace Melting Process of Constructional Steel

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X Orlov, V. I. Change of Gas Content in the Open-Hearth Bath During the Decarburization and Holding Period

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Glinokov, M. A., V. A. Klyamant, Candidate of Technical Sciences [Department of Metallurgical Furnaces]. Performance of the High-Temperature Ceramic Recuperator

80

Kabanov, A. M., Candidate of Technical Sciences [Department of Metallurgical Furnaces]. Mathematical Analysis of the Melting of Steel in the Infinite Phase by Transferring the Heat through the Molten Metal

92

Kolubnin, P. I., Doctor of Technical Sciences, and G. Y. Yezhov, Candidate of Technical Sciences [Department of Rolling]. Investigation of Nonuniformity of Deformation in Rolling

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18(5)

SOV/148-59-1-7/19

AUTHOR: Yedneral, F.P., Doctor of Technical Sciences

TITLE: Intensification of the Smelting Process of Low-Carbon Structural Steel in a Charge of Alloy Wastes (Intensifikatsiya protsesa plavki malouglerodistoy konstruktsionnoy stali na shikhte iz legirovannykh otkhodov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Chernaya metallurgiya, 1959, № 1, pp 59-70 (USSR)

ABSTRACT: To complete previous investigations and to develop a new technology, experiments were carried out on the use of oxygen and complex deoxidizers (composition given) for the purpose of speeding-up the smelting of "12KhNZA" steel in a charge of alloy wastes (composition: C~0.3%; Mn~0.48%; Cr~0.82%; Ni~2.45%) in electric furnaces of 20 ton capacity. The tests were carried out with the participation of: M.I. Lavrent'yev, V.I. Travinin, R.Z. Shloman, S.M. Karmanov, Ye.Z. Gayfer, L.I. Khristoforova, and T.M. Bobkov (from the plant); V.A. Chernyakov, R.N. Lantsman, L.I. Pastukhov and V.I. Matchina from the Moscow Institute of Steel. The experiments included analyses of the oxidation and reduction period of smelting,

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# Intensification of the Smelting Process of Low-Carbon Structural Steel in a Charge of Alloy Wastes

control of the quality of metal and the composition of non-metallic impurities. The tests are described in detail and results are compared with those obtained by conventional methods used at the plant. The tests proved that, in comparison with the usual technology, metal deoxidation was completed within 1 hour 10 minutes instead of 2 hours 20 minutes; the rate and completeness of desulfurization was higher; the nitrogen content was similar in both cases; a shorter reduction time caused reduced hydrogen concentration of the metal; macrostructures and breaks were satisfactory; purity was higher with respect to iridescence filaments; non-metallic impurities were fewer and the metal had a finer granulation. Longitudinal and transverse specimens, deoxidized with triple complex reducing agents, had higher mechanical properties than prescribed by GOST standards. Duration of oxidizing and reduction was reduced by 1 hour 27 minutes or 40%; the general smelting time by 18%; and the specific expense of electric power by 104 kw-hr/t or 15%. The method is recommended for practical use. The author presents graphs showing the content

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and distribution of oxygen, manganese, chromium and nitrogen during oxidation, deoxidation and smelting. The content of impurities and mechanical properties of the metal are given in tables.

There are 9 graphs, 5 tables and 7 references, 5 of which are Soviet and 2 English.

ASSOCIATION: Moskovskiy institut stali (Moscow Institute of Steel)

SUBMITTED: November 11, 1958

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S/133/60/000/011/010/023  
A054/A029

AUTHOR: Yedneral, F.P., Doctor of Technical Sciences  
TITLE: Raising the Efficiency of Steel Melting in Arc Furnaces

PERIODICAL: Stal', 1960, No. 11, pp. 1,004 - 1,007

TEXT: A meeting was convened by the Komissiya po fiziko-khimicheskim os-  
novam proizvodstva stali (Committee of Physical Chemistry in Steel Melting) of  
the Institut metallurgii im. A.A. Baykova (Metallurgical Institute imeni A.A.  
Baykov) of the USSR Academy of Sciences which was attended by 97 delegates from  
metallurgical plants, research institutes, universities, etc. A total of 18 pa-  
pers was read on the subject of raising the efficiency of steel melting in arc  
furnaces. The President, Professor F.P. Yedneral, addressed the meeting and  
outlined the agenda. The following papers were read: A.M. Samarin, Correspond-  
ing Member of the USSR Academy of Sciences: Basic problems of raising the effi-  
ciency in electro-steel melting; V.K. Vorob'yev, Engineer: Raising the effi-  
ciency in the production of high-speed cutting, stainless and other steels by  
using oxygen; V.S. Kudryavtsev, Engineer: Intensification of the melting of  
electro-steel by previous dephosphorization and by combining refining and melt-

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